

## **REMARKS**

### **Claim Amendments**

By the present amendment, claim 43 has been amended. Claims 1-38, 71 and 76 were previously canceled. Claims 39-70, 72-75, and 77-80 are pending and under current examination. No new matter has been added.

### **Office Action**

Applicants respectfully traverse the rejections and objection in the Office Action, which:

(a) rejected claims 39-42, 45-47, 63-65 and 77-80 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2004/0008965 ("*Betty*") in view of U.S. Patent App. Pub. No. 2002/0085811 ("*Kambe*");

(b) rejected claims 43 and 44 under 35 U.S.C. § 103(a) as being unpatentable over *Betty* in view of *Kambe* and U.S. Patent No. 5,309,532 ("*Chang*");

(c) rejected claims 58, 60, and 61 under 35 U.S.C. § 103(a) as being unpatentable over *Betty* in view of *Kambe* and U.S. Patent No. 5,764,765 ("*Phoenix*"); and

(d) rejected claims 66-70, 72, 74 and 75 under 35 U.S.C. § 103(a) as being unpatentable over *Betty* in view of *Kambe* and U.S. Patent No. 5,778,113 ("*Yu*");

(e) objected to claim 59 as being dependent upon a rejected base claim, but indicated that it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and

(f) allowed claims 48-57 and 73.

### **Allowable Subject Matter**

Applicants acknowledge with appreciation the Examiner's indication that claim 48-57, 59 and 73 contain allowable subject matter. *See* Office Action, p. 9. Claim 59 is believed to be allowable for its dependency from claim 39, and for the additional features recited therein. For the reasons discussed below, independent claim 39 as amended is believed to be allowable over

the cited references. Therefore, Applicants respectfully decline to rewrite dependent claim 59 depending therefrom in independent form, and request withdrawal of the objection.

**Rejection of Claims 39-42, 45-47, 63-65 and 77-80 under 35 U.S.C. § 103(a)**

The Examiner has rejected claims 39-42, 45-47, 63-65 and 77-80 under 35 U.S.C.

§ 103(a) as being unpatentable over *Betty* in view of *Kambe*. Applicants respectfully disagree.

The Examiner's attention is respectfully directed to the following portion of claims 39 and 63:

a peak to peak amplitude of the first modulation voltage being different from a peak to peak amplitude of the second modulation voltage.

Applicants submit that at least the above feature of claim 39 as amended is not taught by *Betty* or *Kambe*, alone or in combination.

As the Examiner has stated on page 3 of the Office Action,

*Betty* does not disclose the peak to peak amplitude of the first modulation voltage being different from a peak to peak amplitude of the second modulation voltage.

This deficiency in *Betty* is not remedied by *Kambe*.

The Examiner asserts on page 3 of the Office Action that

*Kambe* teaches [...] that in an optical modulator that it would have been desirable to make the peak to peak amplitude of the first modulation voltage being different from a peak to peak amplitude of the second modulation voltage (Figs. 18A-B and 22) for the purpose of providing an effective optical modulator.

Applicants respectfully disagree with the Examiner's characterization of *Kambe*.

Referring to paragraph [0170] of *Kambe*, Figures 18A-B of *Kambe* show the dependence of extinction ratio characteristics on the bias voltage applied to the electrodes. However, Figures 18A-B do not teach that voltages of different amplitudes are applied to the two optical waveguides 1a, 1b or 11a, 11b of *Kambe*. To the contrary, Figures 18A-B of *Kambe* show the

power as a function of a single bias voltage, which indicates that the same bias voltage is applied to both optical waveguides of *Kambe*, and therefore both bias voltages have the same amplitude.

Referring now to Figures 5, 6A, 6B, 9, 10, 11, 14, 16A, 16B, 19, 20 and 21 of *Kambe*, it is apparent that in every embodiment where *Kambe* shows a circuit for applying a bias voltage to the first and second electrodes, *Kambe* shows a common positive voltage applied to the first and second electrodes, and a negative voltage applied to a third, intermediate electrode. A person skilled in the art would readily understand that this circuit shown in *Kambe* is not capable of applying bias voltages having different amplitudes to the first and second electrodes, as recited in claim 39. This property of *Kambe* is further supported by the recitation in paragraph [0154] that

[a] bias voltage 154 is applied by a direct current power supply 155 across the first and second electrodes 151, 152 and the third electrode 153. A positive (+) voltage is applied to the first electrode 151 and the second electrode 152, and a negative (-) voltage is applied to the third electrode 153.

Similar recitations can be found throughout the specification of *Kambe*, with respect to all of the embodiments of *Kambe* – notably in paragraphs [0122], [0128], [0138], [0141], [0145], and [0149]. As such, it is apparent that in all embodiments *Kambe* applies bias voltages having equal magnitudes to the first and second electrodes corresponding to the first and second waveguides of *Kambe*. Therefore, *Kambe* does not teach a peak to peak amplitude of the first modulation voltage being different from a peak to peak amplitude of the second modulation voltage as claimed.

As such, at least one feature of claims 39 and 63 is not taught by *Betty* or *Kambe*, alone or in combination, and the Examiner is requested to withdraw his rejection thereof, as well as his rejection of claims 40-42, 45-47, 77, and 78 depending from claim 39, and claims 64, 65, 79 and 80 depending from claim 63.

**Remaining Rejections under 35 U.S.C. § 103(a)**

Applicants request reconsideration and withdrawal of the remaining rejections of claims 43, 44, 58, 60, 61, 66-70, 72, 74 and 75 under 35 U.S.C. § 103(a) as being unpatentable over *Betty* in view of *Kambe*, *Chang*, *Phoenix*, or *Yu*.

As discussed above, independent claims 39 and 63 are believed to be allowable for reciting at least one feature that is not taught by *Betty* or *Kambe*, alone or in combination. This deficiency in *Betty* and *Kambe* is not remedied by *Chang*, *Phoenix*, or *Yu*, for the reasons discussed in Applicants' communication dated June 23, 2011. As such, the Examiner is requested to withdraw his rejection of claims 43, 44, 58, 60 and 61 depending from claim 39, as well as claims 66-70, 72, 74 and 75 depending from claim 63.

**Claim 62**

The Examiner has indicated in the Office Action Summary that claim 62 is rejected. However, the text of the Office Action does not state a basis for the rejection of claim 62. Claim 62 was previously indicated in the previous Office Action dated March 29, 2011 as being allowable if rewritten in independent form. None of the other previously allowable claims have been rejected in the present action. Therefore, the inclusion of claim 62 in the list of rejected claims in the Office Action Summary is believed to be a clerical error, and Applicants believe no response is required.

In addition, Applicants decline to rewrite claim 62 in independent form, as it is believed to be allowable in view of its dependency from claim 39.

**Miscellaneous Amendment**

By the present amendment, claim 43 has been amended to correct a clerical error. No change in claim scope is intended or should be inferred.

**Conclusion**

Applicants respectfully request reconsideration of the application and withdrawal of the rejections and objection. The pending claims are in condition for allowance, and Applicants request a favorable action.

The Office Action contains a number of statements reflecting characterizations of the cited references and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any such statement or characterization.

If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 504154.

Respectfully submitted,

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